



**NORTHCENTRAL UNIVERSITY  
ASSIGNMENT COVER SHEET**

Student: **Michael Higley-Vance**

**THIS FORM MUST BE COMPLETELY FILLED IN**

**Follow these procedures:** If requested by your instructor, please include an assignment cover sheet. This will become the first page of your assignment. In addition, your assignment header should include your last name, first initial, course code, dash, and assignment number. This should be left justified, with the page number right justified. For example:

DoeJXXX0000-1

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**Save a copy of your assignments:** You may need to re-submit an assignment at your instructor's request. Make sure you save your files in accessible location.

**Academic integrity:** All work submitted in each course must be your own original work. This includes all assignments, exams, term papers, and other projects required by your instructor. Knowingly submitting another person's work as your own, without properly citing the source of the work, is considered plagiarism. This will result in an unsatisfactory grade for the work submitted or for the entire course. It may also result in academic dismissal from the University.

**EDU7006-8**

**Dr. Rebecca Watts**

**Quantitative Research Design**

**Activity #6: Contributing to Theory:  
Independent, Mediating, Moderating  
and Dependent Variables**

**Comments:**

**Faculty Use Only**

~~<Faculty comments here>~~ Michael, thanks for submitting this assignment. Michael, you did not follow the assignment directions. You were to review 5 research studies on a single topic. You were to identify the research elements for each of the five articles. You were to write annotations for each of the five articles and identify these elements in each of the five articles. The primary focus of your discussion in this paper is on the Ritchey and Case studies. I will give you part credit for your discussion on these two studies. You did not full address item 5 of the instructions. You did not describe a study to include mediating and

moderating variables. This is a good website for understanding mediating and moderating variables and how they differ in specific contexts. (<http://psych.wisc.edu/henriques/mediator.html>). In preparing for your dissertation study, I would strongly encourage you to write annotations that are explicit and that thoroughly identify the variables and their operational definitions. Your task in identifying a research problem is to compare the variables used in many studies and the findings that show how these variables influence the dependent variable. You must identify the variables and contexts that have not been studied and show how your study can add to the current literature. In doing this, you do not simply state the results of many different studies. You compare variables and results across studies. This occurs by writing many many annotations for many many research studies.

40%

&lt;Faculty Name&gt;

&lt;Grade Earned&gt;

&lt;Writing Score&gt;

&lt;Date Graded&gt;

Numerical Points	Letter Grade	Descriptor	Explanation
100 - 94	A	Excellent	Completes <b>all</b> required parts of the assignment, demonstrates <b>deep</b> understanding of materials, uses <b>very</b> clear and effective expression appropriate to scholarly writing, and has <b>very few or no</b> errors in grammar, mechanics, and APA formatting.
93-90	A-		
89-87	B+	Good	Completes <b>all or most</b> required parts of the assignment, demonstrates <b>good</b> understanding of readings, uses <b>mostly</b> clear and effective expression appropriate to scholarly writing, and has <b>few</b> errors in grammar, mechanics, and APA formatting.
86-83	B		
82-80	B-	Fair	Completes <b>most</b> required parts of the assignment, demonstrates <b>some</b> understanding of readings, and writing is <b>somewhat</b> clear, effective, and scholarly, and has <b>some</b> errors in grammar, mechanics, and
79-77	C+		

			APA formatting.
<b>76-73</b>	<b>C</b>	<b>Poor</b>	Completes <b>some</b> required parts of the assignment, demonstrates <b>some</b> understanding of readings, and writing is <b>difficult to understand</b> and <b>unscholarly</b> and has <b>several</b> errors in grammar, mechanics, and APA formatting.
<b>72-0</b>	<b>F</b>	<b>Unacceptable</b>	Completes <b>few</b> required parts of the assignment, demonstrates <b>little</b> understanding of readings, and writing is <b>difficult to understand</b> and <b>unscholarly</b> and has <b>many</b> errors in grammar, mechanics, and APA formatting.

Examine the literature in your topic area and identify five articles published within the past five years<sup>[1]</sup> that investigate mediating, moderating, or independent variables in an attempt to contribute to theory in the topic area. Write a paper in which for each article, you:

1. Describes the theory the researchers explore. What are the key constructs in the theory? How are they related? Identify which ones are cause, effect, mediating, or moderating constructs. How are the constructs operationalized?
2. Briefly describe the study, including the number of participants and research methods.
3. Briefly describe the statistical analyses used
4. Briefly described the findings and how the researchers interpreted them and their contribution to theory.
- 5.<sup>[2]</sup> Using some or all of the five articles, argue for a gap in the knowledge in the topic area and briefly describe a study involving mediator and or moderator variables that can contribute to theory.

Length: 5-7 pages not including title and reference pages. References: Minimum of 3-5

scholarly resources.

### Contributing to Theory: Reading Interventions

The research articles discovered for this paper explore the theories and methods used in providing reading interventions and the effects these interventions have on various readings skills such as phoneme, fluency, comprehension, and oral language. Studies from around the world have revealed that a significant number of school-aged children struggle with complex texts, phonemic awareness, and phonic skills (Case et al., 2010; Chang & Millett, 2013; Hulme, Bowyer-Crane, Carroll, Duff, & Snowling, 2012; Vaughn et al., 2011), while other studies focused on the importance of quality intervention strategies (Case et al., 2010; Ritchey, Silerman, Montanaro, Speece, & Schatschneider, 2012), and the cognitive attributes of students who responded adequately and inadequately to reading interventions (Fletcher et al., 2011). This paper will explore the research in the field of reading interventions in order to identify, describe, and compare the theory, constructs, statistical analyses, and findings of each one.

### Theory

The theory that is the basis of the research studies in this paper is cognitive learning theory. Originally developed by Albert Bandura in the 1960's and heavily influenced by Piaget

(Atherton, 2013), the theory posits that learning occurs with an emphasis on interaction, environment, and behavior. Cognitivist learning theory focuses on learning behaviors and attempts to identify several conditions related to the aptitude and individual learning styles (Atherton, 2013). Cognitivists seek to discover the mental processes that operate according to thinking, memory, knowing, and problem-solving (Haraism, 2012). In education, cognitive learning theory is primarily used to manipulate instructional practices and strategies needed to transmit knowledge or skill from the instructor or software to the student (Haraism, 2012). Given this construct, cognitivism is the ideal theory to be used for reading intervention efforts because it focuses on individualized learning perspective and procedures.

This is a general explanation of the cognitive learning theory. If your specific interest is in reading comprehension, then the research studies that you reviewed applied this theory specifically to the improvement of reading comprehension. You want to explain the theory, not from a general frame of reference, but as it specifically relates to the single research study.

### **The Research Studies**

Reading intervention [3] was the primary focus of the research studies reviewed for this paper. Ritchey, Silverman, Montanaro, Speece, and Schatschneider (2012), along with Vaughn et al. (2011), focused their reading interventions on reading comprehension. Case et al. (2010), Hulme, Bowyer-Crane, Carroll, Duff, and Snowling (2012), along with Chang and Millett, (2013) focused their reading interventions on phonemic awareness and reading fluency. The common goal each of the studies shared was to improve overall reading skills through reading intervention efforts, which focused on specific reading skills such as comprehension, fluency, and phonemic awareness. This is too general of an explanation and does not meet the requirements of the assignment.

## Constructs

There are five key foundational constructs in cognitive learning theory, which include: reciprocal determinism, behavioral capability, observational learning, reinforcements, and expectations (Boston University, 2013). These five constructs help researchers explain how the learning behaviors of the intervention group, or groups, can be manipulated through intervention and reinforcement to achieve learning specific goals and outcomes that can be maintained over time. The foundational constructs found in the reviewed studies are behavior capability, observational learning, and reinforcements<sup>[4]</sup>. Identifying the constructs of the research and depicting any casual relationships that may exist between the variables help researchers explain when, why, and how learning occurs (Kim, Kaye, & Wright, 2001).

**Moderating.** Case et al. (2010) examined the moderator variables specific to the responsiveness of reading intervention strategies. These variables ([what specific variables?](#)) were operationalized using 24 lessons implemented across 11 weeks, and totaling 16 hours of targeted reading interventions<sup>[5]</sup> in phonemes and reading fluency (Case et al., 2010). Measures were taken from an academic competence assessment given to instructors, which focused on the content knowledge and ability of the instructor to provide students with appropriate reading interventions. An assessment was also created to assess the instructor's ability to identify a student's reading ability called a reading rating assessment. Additionally, a parent survey was conducted, which asked demographic information and a rating of their child's reading behavior at home. Finally, a comprehensive student assessment was given to determine the anticipated improvements in fluency and phoneme skills. Repeated measures analysis of variance (ANOVA) and growth curve analysis (GCA) were used to examine differences between the intervention and control groups (Case et al., 2010). The moderating variables were examined at

the end of the intervention period and compared with the student assessment to assess any influences the moderating variables may have had on the phonemic awareness and reading fluency of the intervention group. [So, what were the moderating variables?](#)

**Mediating.** There were three studies reviewed that used mediating variables, each representing a specific reading intervention, assessing the possible effects the interventions had on improving reading skills such as fluency, comprehension, and oral language (Chang & Millett, 2013; Hulme et al., 2012; Vaughn et al., 2011). The variables were operationalized using a variety of assessments, which included: spoken language, phonological skills, and literacy tests. Descriptive and correlational statistics were used to determine the casual effects, and the analyses were conducted using a Path model ([for which of the studies](#)). The mediation and Path models allow researchers to examine how and what effects the interventions have on the dependent variable, or student reading skills. Additionally, the mediation model allows researchers to determine the factors that account for the intervention's effects (Hulme et al., 2012).

**Moderating and Mediating.** One study examined both the mediating and moderating effects of a Tier 2 reading intervention model ([Ritchey et al., 2012](#)). Ritchey et al. (2012) evaluated the effects of a 24-session intervention, targeting fluency and comprehension. The constructs of this mediation model helped researchers identify the specific components of each intervention, which might have had a positive effect on the reading fluency and comprehension of the intervention group. The moderating variables focused on the differences between the intervention and control groups. The mediating variables were operationalized using five pre-test and posttest assessments, as well as two progress-monitoring assessments and three post test

only assessments. Additionally, two moderator variables were embedded within the pre-test and posttest design to explore whether attendance, intervention fidelity, and instructor rating ability might have had an effect on the outcomes of the interventions.

The assessments discussed above were analyzed using a variety of statistical analyses including: a rating scale, Hedges'  $g$ , post hoc power analysis, estimating interactions random effects analysis of covariance (ANCOVA), and an ANOVA. A rating scale was used to rate the attention and attendance of the intervention groups. The ANCOVA and ANOVA statistical analyses were used to determine the correlations and differences between the intervention and control groups. The post hoc power analysis was used to detect statistical significance, given the small number of participants, between the intervention and control groups (Case et al., 2010). Finally, Hedges'  $g$  and the intercept analyses were used to analyze the possible effects of the progress monitoring variables (Ritchey et al., 2012).

## The Findings

The findings of the studies reviewed in this paper consisted of various outcomes, which consistently purported that the intervention groups significantly did better on specific and pre-identified reading skills (Chang & Millett, 2013; Hulme et al., 2012; Ritchey et al., 2012; Vaughn et al., 2011). According to Ritchey et al. (2012), the primary finding of their research concluded that multi-component reading interventions (such as ??) are effective for improving fluency and comprehension skills of upper elementary students because "this age likely exhibit multiple reading problems" (Ritchey et al., 2012, p. 11, as reported by Snow, 2002). Hulme et al. (2012) reported that phoneme awareness has a casual influence on the development of overall reading skills. Chang and Millett (2013) found that good reading fluency usually indicates a

high level of comprehension however, according to two other studies listed in the article this finding is considerably influenced by culture and on going comprehension assessments.

Furthermore, Case et al. (2010) found that a higher percentage of children in the intervention group who had low scores during the pre-test assessment scored above the control group mean during the posttest reading assessment. Ultimately all of the studies found that participants in the intervention groups did considerably better than the control groups (Case et al., 2010; Chang & Millett, 2013; Hulme et al., 2012; Ritchey et al., 2012; Vaughn et al., 2011), and although short-term interventions show small improvements in reading skills there is no significant long-term effect of using interventions that are conducted on a short-term basis (Case et al., 2010).

### **Research Limitations**

A primary limitation in the research is that while the quality of intervention can be obtained from the control group, daily regular classroom reading practices cannot be controlled or determined on a regular basis (Ritchey et al., 2012). Using a parent and teacher rating scale provides important demographic and reading information about the participants however, survey assessments are subjective and do not provide a conclusive link between home reading behavior and overall reading achievement (Case et al., 2010). The representative population differences between public and private schools is a limitation because the participants in the intervention study could have dramatically different reading ability levels than those of other study populations (Case et al., 2010; Chang & Millett, 2013). Additionally, other unidentified factors such as the actual time spent on each reading intervention, classroom management behaviors, time of day (for what), and year (year of what) might have a significant overall effect on improving reading skills (Chang & Millett, 2013). Finally, participants' prior knowledge and

experiences cannot be fully known for purposes of placement to ensure homogeneous alignments within either the intervention or control groups (Hulme et al., 2012).

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